

CLAIMS

What is claimed is:

1 Claim 1. A solid calcium hypochlorite formulation
2 comprising:

3 a calcium hypochlorite particle containing at least 50%
4 active calcium hypochlorite and having an available chlorine
5 content of at least about 30%;

6 from about 0.01 to about 10% by weight of a polymeric
7 alkali salt; and

8 a water content of from about 2% to about 20% by
9 weight;

10 wherein said solid calcium hypochlorite exhibits anti-
11 scaling characteristics and reduced hygroscopicity and
12 reactivity.

1 Claim 2. The formulation in accordance with claim 1,
2 wherein:

3 said calcium hypochlorite particle is in the form of a
4 granule, a pellet, a tablet or a briquette.

1 Claim 3. The formulation in accordance with claim 1,
2 wherein:

1 said calcium hypochlorite particle is coated or
2 encapsulated with at least one alkali salt of a compound
3 selected from the group consisting of a polymaleate, a
4 polyacrylate, a polycarboxylate, a polymethacrylate, a
5 phosphinopolycarboxylate, a carboxylate-sulfonate copolymer,
6 a maleic anhydride copolymer, a polyepoxysuccinate, maleate-
7 sulfonate copolymer, maleate-phosphonate copolymer,
8 carboxylate-phosphonate copolymer, or mixtures thereof.

1 Claim 4. The formulation in accordance with claim 3,
2 wherein:

3 the alkali salt is at least one salt selected from the
4 group consisting of the sodium, potassium, lithium, calcium
5 or magnesium salts of said compounds.

1 Claim 5. The formulation in accordance with claim 3
2 wherein said alkali salt is in the form of a liquid, a
3 slurry, or a solid.

1 Claim 6. The formulation in accordance with claim 1,
2 further including:

3 a deposit controlling effective amount of an agent
4 selected from the group consisting of at least one alkali
5 salt of a compound selected from the group consisting of

1 polymaleic acid, polyepoxysuccinic acid, maleic anhydride
2 copolymer, phosphinopolycarboxylic acid, carboxylic-sulfonic
3 acid copolymer, maleic-sulfonic acid copolymer, maleic-
4 phosphonic acid copolymer, carboxylic-phosphonic acid
5 copolymer, or mixtures thereof.

1 Claim 7. The formulation in accordance with claim 6,
2 wherein:

3 the alkali salt is at least one salt selected from the
4 group consisting of the sodium, potassium, lithium, calcium
5 or magnesium salts of said compounds.

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2 Claim 8. The formulation in accordance with claim 6,
3 wherein:

4 said deposit controlling effective amount is from about
5 0.01% to about 10% of the final weight of the formulated
6 calcium hypochlorite product.

1 Claim 9. The formulation in accordance with claim 1
2 wherein:

3 said polymeric alkali salt is a polymaleic acid salt, a
4 polyepoxysuccinic acid salt or mixtures thereof.

1 Claim 10. The formulation in accordance with claim 1

1 wherein:

2 said polymeric alkali salt is a maleic anhydride
3 copolymer salt.

1 Claim 11. The formulation in accordance with claim 1

2 wherein:

3 said polymeric alkali salt is a phosphinocarboxylate
4 salt.

1 Claim 12. The formulation in accordance with claim 1

2 wherein:

3 said polymeric alkali salt is a polyacrylate salt.

1 Claim 13. The formulation in accordance with claim 1

2 wherein:

3 said polymeric alkali salt is a polyacrylamide salt.

1 Claim 14. The formulation in accordance with claim 1

2 wherein:

3 said polymeric alkali salt is a carboxylic-sulfonic
4 acid copolymer.

1 Claim 15. The formulation in accordance with claim 1
2 wherein:

3 said polymeric alkali salt is a maleic-sulfonic acid
4 copolymer.

1 Claim 16. The formulation in accordance with claim 1
2 wherein:

3 said polymeric alkali salt is a maleic-phosphonic acid
4 copolymer.

1 Claim 17. The formulation in accordance with claim 1
2 wherein:

3 said polymeric alkali salt is a carboxylic-phosphonic
4 acid copolymer.

1 Claim 18. A method for applying a polymeric alkali salt
2 to reduce the hygroscopic and reactivity characteristics of
3 a solid calcium hypochlorite particle comprising:

4 providing a solid calcium hypochlorite in a particle
5 form;

6 applying at least one polymeric alkali salt to said
7 solid calcium hypochlorite in an amount sufficient to reduce
8 reactivity of said calcium hypochlorite during at least one
9 phase of a calcium hypochlorite manufacturing process.

1 Claim 19. The method in accordance with claim 18
2 wherein:

3 said polymeric alkali salt is applied in the form of a
4 slurry.

1 Claim 20. The method in accordance with claim 18
2 wherein:

3 said polymeric alkali salt is applied in the form of a
4 solid.

1 Claim 21. The method in accordance with claim 18
2 wherein:

3 said polymeric alkali salt is applied in the form of a
4 foam.

1 Claim 22. The method in accordance with claim 18
2 wherein:

3 said polymeric alkali salt is applied in the form of a
4 liquid.

1 Claim 23. The method in accordance with claim 18
2 further including:
3 addition of a deposit controlling effective amount of

1 an agent selected from the group consisting of at least one
2 alkali salt of a compound selected from the group consisting
3 of polymaleic acid, polyexpoxysuccinic acid, maleic
4 anhydride copolymer, phosphinopolycarboxylic acid,
5 carboxylic-sulfonic acid copolymer, maleic-sulfonic acid
6 copolymer, maleic-phosphonic acid copolymer, carboxylic-
7 phosphonic acid copolymer, or mixtures thereof.